

PLANT COMMUNITY SURVEY OF THE  
BUCK DEMONE RANCH,  
FERGUS COUNTY, MONTANA

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Abstract.--*Plant communities of the Buck Demone Ranch in the Big Snowy Mountains of central Montana are described and mapped. These results are based on 28 reconnaissance "fast plots" and one reconnaissance "standard plot" located along environmental gradients. Floristic data were grouped into community types based on existing classifications. Results indicate the presence of 15 community types (10 upland forest; 1 grassland; 4 riparian). Three of the 15 community types observed on the ranch are globally rare (i.e., Populus tremuloides/Osmorhiza occidentalis, Pseudotsuga menziesii/Viola canadensis, and P. menziesii/Cornus stolonifera). These results are based on two-days of fieldwork and must be regarded as tentative pending more intensive sampling.*

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## INTRODUCTION

At the request of The Nature Conservancy's Montana Field Office, I surveyed the Buck Demone Ranch (260 acres) on July 5 and 6, 1990. The ranch is located in the southwestern portion of the Big Snowy Mountains, Montana (Figure 1). Access to the ranch is via gravel and dirt roads leading east from Garneill (circa 5 miles north of Judith Gap on US Highway 191). The objective of the survey was to provide a description of plant community/environmental relationships on the ranch and preliminary interpretations of the ranches biodiversity significance.

The ranch primarily occurs on the west end of a east-to-west trending ridge with drainage bottoms defining the north and south boundaries (Figure 2). Elevations range from approximately 5300 to 6400 feet. Parent materials are predominately Madison limestone in the northeastern portion of the ranch and the Quadrant formation (predominantly limestone) in the southwestern portion (Reeves 1930). Both of these formations are of Carboniferous age (225-280 million years old) with the Madison formation being the oldest. Limestone outcrops occur sporadically throughout the ranch. Descriptive information for the five soil types mapped on the ranch (Figure 3) is presented in Table 1 (note: soil types defined by Clark 1988).

The southern drainage bottom contains the ranch access road and is being used for hay production (B. Demone, *personal communication*). This hay production area is the only heavily impacted area of the ranch. Over 70 percent of the ranch occurs on a south- to southwest-facing slope featuring open forests and savannahs. The northly slopes present are predominantly covered by closed forests.

Mr. Demone briefly discussed his management plans for the ranch with me on July 5, 1990. He does not plan to graze livestock. However, I observed no fences separating Mr. Demone's property from adjacent properties that are being grazed (note: Mr. Demone indicated that an adjacent ranch is grazing buffalo). Mr. Demone also suggested possibly enhancing wildlife habitat for ungulates via small-scale logging to open dense stands and the installation of small water tanks to provide

drinking water for wildlife. *Euphorbia esula* (leafy spurge) occurs sporadically on the ranch and Mr. Demone is currently using spot herbicide applications to control the species.

## METHODS

Samples were subjectively selected using a variation of the "gradsect" method described by Gillison and Brewer (1985). The method involved preferential sampling along local transects following the maximum perceived environmental gradients. Representation of the range of vegetation, elevation, topographic, and soil conditions was strived for.

Of the 29 reconnaissance plots established, 28 were "fast plots" where the basic information recorded included location of the plot on a topographic field map, community type name, canopy cover estimates of the five to ten dominant plant species (recorded on 16 of the plots), and general comments regarding the community occurrence. A Montana Natural Heritage Program community survey form (1990 version) was completed at one location. This "standard plot" included a list and individual cover estimates of all vascular plant species present, detailed measurements of environmental features (e.g., landform type, slope, aspect, ground cover estimates) and vegetation structure, conservation rank, and general comments.

This report represents a summary and interpretation of the information collected on the 29 survey plots.

Species nomenclature follows Hitchcock and Cronquist (1973).

## RESULTS AND DISCUSSION

The locations of the 29 study plots are shown in Figure 2. Environmental characteristics for each of these plots are presented in Table 2 ordered by moisture index (basically a composite of topographic position and aspect) and community type. Community type map units and their characteristic soils are presented in Table 3 and mapped in

Figure 4. Descriptions of the 15 community types encountered and their general environmental relationships follow:

**Riparian Areas.** The riparian meadows community observed was a heavily disturbed hay field dominated by exotic species with *Melilotus officinalis* having 95 percent cover or more and *Phleum pratense* and *Poa pratensis* both well represented.

Three riparian forest types were observed: POTR/OSOC\*, PSME/VICA, and PSME/COST. All of these types are species rich. The PSME/VICA type likely represents the "climax" riparian forest situation on the ranch and was found to feature an abundance of *Pseudotsuga menziesii* and *Acer glabrum*, with *Pinus ponderosa*, *Viola canadensis*, *Berberis repens*, *Osmorhiza chilensis*, and *Symphoricarpos albus* well represented.

**Upland Forests.** Although *Pinus ponderosa* is common on the south slopes, *Pseudotsuga menziesii* is usually present and reproducing successfully. Therefore, representations of the *P. ponderosa* climax series appear rare on the ranch.

PSME/LIBO,SYAL\*\* was found on the most mesic slope situations on the ranch. *Pseudotsuga menziesii*, *Pinus contorta*, *Linnaea borealis*, and moss cover were characteristically abundant. In drier situations of this type *Juniperus communis* is well represented to abundant. Maximum diameters and heights for *P. menziesii* observed were 20 inches and 50 feet, respectively.

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\* note: the predominant *Osmorhiza* in the POTR/OSOC plots is *O. chilensis* not *O. occidentalis*.

\*\* *Symphoricarpos albus* (SYAL) is characteristically minor on the ranch. However, as suggested by Daubenmire and Daubenmire (1968), *Spiraea betulifolia* (SPBE) was regarded as an ecological equivalent of SYAL. SPBE was generally well represented in the communities identified with SYAL.

The single detailed community survey "standard plot" sample was located in a PICO/LIBO community. This approximately 1/10 acre plot contained 28 vascular plant species including: *Pinus contorta* (80% canopy cover), *Juniperus communis* (60% cc), *Linnaea borealis* (10% cc), *Clematis pseudoalpina* (10% cc), *Berberis repens* (3% cc), *Arctostaphylos uva-ursi* (3% cc), and *Shepherdia canadensis* (3% cc). Additionally, about 30 *Cypripedium montanum* orchids (trace cover) were in flower on the plot at the time of the survey. The stand appears to be self-replacing even though *P. contorta* regeneration is scant. No other tree species appears to be gaining dominance.

PSME/SYAL, SYAL and PSME/SYAL, AGSP have generally similar vegetation and site characteristics. The SYAL phase occurs on slightly more mesic sites than the AGSP phase and is the predominant community type of the ranches southerly slopes. Essentially, occurrences in the SYAL phase are closed forests while AGSP phase occurrences are open forests (savannahs) transitional to grasslands (i.e., the FEID-AGSP community type). In either phase, *Pinus ponderosa* may be abundant while *Pseudotsuga menziesii* is only well represented (but reproducing successfully). *Spiraea betulifolia* and *Symphoricarpos albus* are characteristically well represented in both phases. *Festuca idahoensis*, *Agropyron spicatum*, *Balsamorhiza sagittata* are additional species characteristic of the AGSP phase undergrowths. Maximum diameters and heights for trees observed in these communities was 20 inches and 40 feet, respectively.

The most xeric slope communities on the ranch include PSME/AGSP, PIPO/FEID, FEID, and FEID-AGSP. PSME/AGSP is the most common of these three communities on the ranch and is represented by open forests and savannahs. Generally, *Pinus ponderosa* predominates over the successfully reproducing *Pseudotsuga menziesii*. In the few areas where *Pseudotsuga menziesii* is absent either the PIPO/FEID, FEID type (where trees are present) or the FEID-AGSP type (where trees are absent) are expressed. In some areas, trees appear to be "invading" grasslands and such sites would likely be classified as FEID-AGSP communities under conditions of a frequent fire regime. Species characteristically well represented in the PSME/AGSP occurrences are: *Pseudotsuga menziesii*, *Pinus ponderosa*,

*Agropyron spicatum*, *Festuca idahoensis*, and *Balsamorhiza sagittata*. Maximum diameters, heights, and ages for *P. menziesii* observed were 20 inches, 40 feet, and 80 years, respectively.

The remaining four community types (PICO/JUCO; PIFL/JUCO; PSME/JUCO; and PIFL/FEID,FEID) are all predominantly found on upper slopes and ridges on the ranch. *Pinus flexilis* and *Pseudotsuga menziesii* are both absent from the PICO/JUCO occurrence which is dominated by *Pinus contorta* (70% canopy cover), *Juniperus communis* (30% cc), and *Arctostaphylos uva-ursi* (15% cc). In contrast, the PIFL/JUCO occurrences generally feature co-dominance of *Pinus flexilis* and *Pseudotsuga menziesii*. *Pinus ponderosa* and/or *P. contorta* were sometimes well represented. PIFL/JUCO undergrowths were dominated by *Juniperus communis*, with *Arctostaphylos uva-ursi*, *Aster conspicuus*, *Berberis repens*, and *Spiraea betulifolia* sometimes well represented. Maximum diameters and heights for trees observed in the PIFL/JUCO occurrences was 20 inches and 45 feet, respectively.

PSME/JUCO and PIFL/FEID,FEID communities were both sampled only once. Characteristics of the PSME/JUCO type were basically the same as for PIFL/JUCO except that *Pinus flexilis* was not present. *Pinus flexilis* and *Pseudotsuga menziesii* co-dominate the overstory of the PIFL/FEID,FEID occurrence and *Pinus ponderosa* is present. Undergrowth composition features *Festuca idahoensis* (20% canopy cover), *Agropyron spicatum* (10% cc), and *Juniperus communis* (15% cc).

## CONSERVATION SPECIFIC COMMENTS

Based on the best information currently available, three of the 15 community types observed on the ranch are globally rare (i.e., POTR/OSOC, PSME/VICA, and PSME/COST). All three of these communities are riparian or lower slope types. Of the occurrences observed for these types, plots 7 and 8 (see Table 2 and Figure 2) are the most disturbed. A small jeep trail traverses these occurrences and the exotic grasses *Phleum pratense* and *Poa pratensis* are both present. Plots 11 and 20 represent quality occurrences (Table 2; Figure 2) with few weeds despite the presence of a faint jeep trail in plot 11 and the close proximity of



plot 20 to the *Melilotus officinalis*-dominated meadow (plot 1) and the ranch access road.

The upland forests and savannahs are in generally good condition (from a conservation standpoint) although the exotics *Melilotus officinalis* and *Medicago lupulina* are locally well represented on the lower and mid southerly slopes above the access road. *Bromus tectorum* is scattered throughout but was not found in abundance at any location. Charred stumps were observed in and around plot 14 suggesting past logging (post-fire salvage? the oldest living tree cored in the vicinity of these stumps was circa 100 years). However, for the most part, the forests do not show signs of timber harvest. Additionally, the generally steep slopes present and distance to water has apparently minimized heavy livestock use (note: Mr. Demone is not currently grazing livestock on his property and does not plan to).

Small patches of *Euphorbia esula* were observed just below plots 5 and 16 (see Figure 2 for plot locations). This species appears in small enough numbers on the ranch that it could likely be easily eliminated (as Mr. Demone is attempting).

One small limestone cave was discovered during the plant community fieldwork. Perhaps other caves occur on the property and a cave survey may be warranted to identify cave locations and their faunal composition.

Finally, the ranch may contain *Goodyera repens*, a rare plant in Montana (ranked G5S1) and a survey for the species may be warranted. I found no rare plants during my survey.



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Table 1. Soil map units (as defined by Clark (1988)) on the Buck Demone Ranch. See Figure 3 for soils map.

<u>CODE</u>	<u>MAP UNIT #</u>	<u>SUBGROUP</u>	<u>PARENT MATERIAL</u>
1	10	Pachic Cryoboroll	alluvium
2	124	forested = Udic Haploboroll grassland = Calcic Cryoboroll	limestone resi- duum/colluvium
3	262	Typic Ustochrepts and Udic Haploborolls	limestone resi- duum/colluvium
4	263	same as 262 but with a higher frequency of rock outcrops	limestone resi- duum/colluvium
5	264	Typic Cryochrept	limestone resi- duum/colluvium

Table 2. Moisture index (1=most mesic; 5=most xeric), elevation (feet), aspect, topographic position, global and state abundance ranks (1=very rare; 5=very common), and plot numbers for plots on the Buck Demone Ranch. See code definitions and community type authorities at bottom of table.

<u>PLOT</u>	<u>CT</u>	<u>INDEX</u>	<u>ELEV</u>	<u>ASP.</u>	<u>POS.</u>	<u>RANK</u>
1	riparian meadows (weedy)	1	5320	NW	draw	G5S5
7	POTR/OSOC	1	5400	SW	draw	G3S3
11	POTR/OSOC*	1	5480	NE	draw	G3S3
8	PSME/VICA	1	5420	SW	draw	G3S3
20	PSME/VICA	1	5360	NE	lower	G3S3
12	PSME/LIBO,SYAL	2	5520	NE	lower	G4S4
13	PSME/LIBO,SYAL	2	5680	N	mid	G4S4
9	PSME/LIBO,SYAL	3	5480	NW	lower	G4S4
A	PICO/LIBO	3	5760	NW	mid	G5S5
3	PSME/SYAL,SYAL	4	5440	SW	mid	G5S5
21	PSME/SYAL,SYAL	4	5760	W	mid	G5S5
22	PSME/SYAL,SYAL	4	5960	SW	mid	G5S5
28	PSME/SYAL,SYAL	4	5900	S	mid	G5S5
2	PSME/SYAL,AGSP	4	5420	SW	mid	G5S5
4	PSME/SYAL,AGSP	4	5480	S	mid	G5S5
17	PSME/SYAL,AGSP	4	5900	SW	upper	G5S5
5	PSME/AGSP	4	5780	S	upper	G5S4
15	PSME/AGSP**	4	6020	NW	ridge	G5S4

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\*and PSME/COST (rank = G3S3)

\*\*FEID-AGSP community being "invaded" by trees (rank = G4S4)

Table 2. (continued)

<u>PLOT</u>	<u>CT</u>	<u>INDEX</u>	<u>ELEV</u>	<u>ASP.</u>	<u>POS.</u>	<u>RANK</u>
16	PSME/AGSP	4	5960	SW	upper	G5S4
19	PSME/AGSP***	4	5720	SW	mid	G5S4
27	PSME/AGSP	4	6100	SW	ridge	G5S4
24	PICO/JUCO	5	6220	S	upper	G5S3
6	PIFL/JUCO	5	5840	W	ridge	G5S4
10	PIFL/JUCO	5	5640	N	ridge	G5S4
14	PIFL/JUCO	5	5940	N	upper	G5S4
18	PIFL/JUCO	5	5760	W	mid	G5S4
23	PIFL/JUCO	5	6240	W	upper	G5S4
25	PIFL/FEID,FEID	5	6360	SE	ridge	G5S4
26	PSME/JUCO	5	6100	SE	mid	G5S4

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 \*\*\* patches of PIPO/FEID,FEID appear to be present at the driest extreme of forested sites at low elevations (rank=G5S3)

FEID-AGSP:	<i>Festuca idahoensis</i> - <i>Agropyron spicatum</i> (Mueggler and Stewart 1980)
PICO/JUCO:	<i>Pinus contorta</i> / <i>Juniperus communis</i> (Roberts 1980)
PICO/LIBO:	<i>P. contorta</i> / <i>Linnaea borealis</i> (Pfister et al. 1977)
PIFL/JUCO:	<i>P. flexilis</i> / <i>J. communis</i> (Pfister et al. 1977)
PIFL/FEID,FEID:	<i>P. flexilis</i> / <i>Festuca idahoensis</i> , <i>F. idahoensis</i> phase (Pfister et al. 1977)
PIPO/FEID,FEID:	<i>P. ponderosa</i> / <i>F. idahoensis</i> , <i>F. idahoensis</i> phase (Pfister et al. 1977)
POTR/OSOC:	<i>Populus tremuloides</i> / <i>Osmorhiza occidentalis</i> (Hansen et al. 1990)
PSME/AGSP:	<i>Pseudotsuga menziesii</i> / <i>A. spicatum</i> (Pfister et al. 1977)
PSME/COST:	<i>P. menziesii</i> / <i>Cornus stolonifera</i> (Hansen et al. 1990)
PSME/JUCO:	<i>P. menziesii</i> / <i>J. communis</i> (Pfister et al. 1977)

Table 2. (continued)

PSME/LIBO,SYAL:	<i>P. menziesii/L. borealis, Symphoricarpos albus</i> phase (Pfister et al. 1977)
PSME/SYAL,AGSP:	<i>P. menziesii/S. albus, A. spicatum</i> phase (Pfister et al. 1977)
PSME/SYAL,SYAL:	<i>P. menziesii/S. albus, S. albus</i> phase (Pfister et al. 1977)
PSME/VICA:	<i>P. menziesii/Viola canadensis</i> (Roberts 1980)

Table 3. Community type map units on the Buck Demone Ranch. See Table 2 for code definitions.

<u>CODE</u>	<u>CT's/SITES INCLUDED</u>	<u>CHARACTERISTIC SOIL</u>
A	riparian meadows (weedy)	Pachic Cryoboroll
B	POTR/OSOC; PSME/COST; PSME/VICA riparian	alluvial (subgroup not identified)
C	PSME/LIBO,SYAL very mesic N-slope protected basin	Typic Cryochrept
D	PICO/LIBO; PSME/LIBO,SYAL moderately mesic NW-slope	Typic Ustochrept
E	PICO/JUCO; PIFL/FEID,FEID; PIFL/JUCO; PSME/JUCO ridges and upper slopes	Typic Ustochrept
F	FEID-AGSP; PIPO/FEID,FEID; PSME/AGSP; PSME/SYAL,AGSP; PSME/SYAL,SYAL; S-slope +/- mesic to xeric sites	Udic Haploboroll

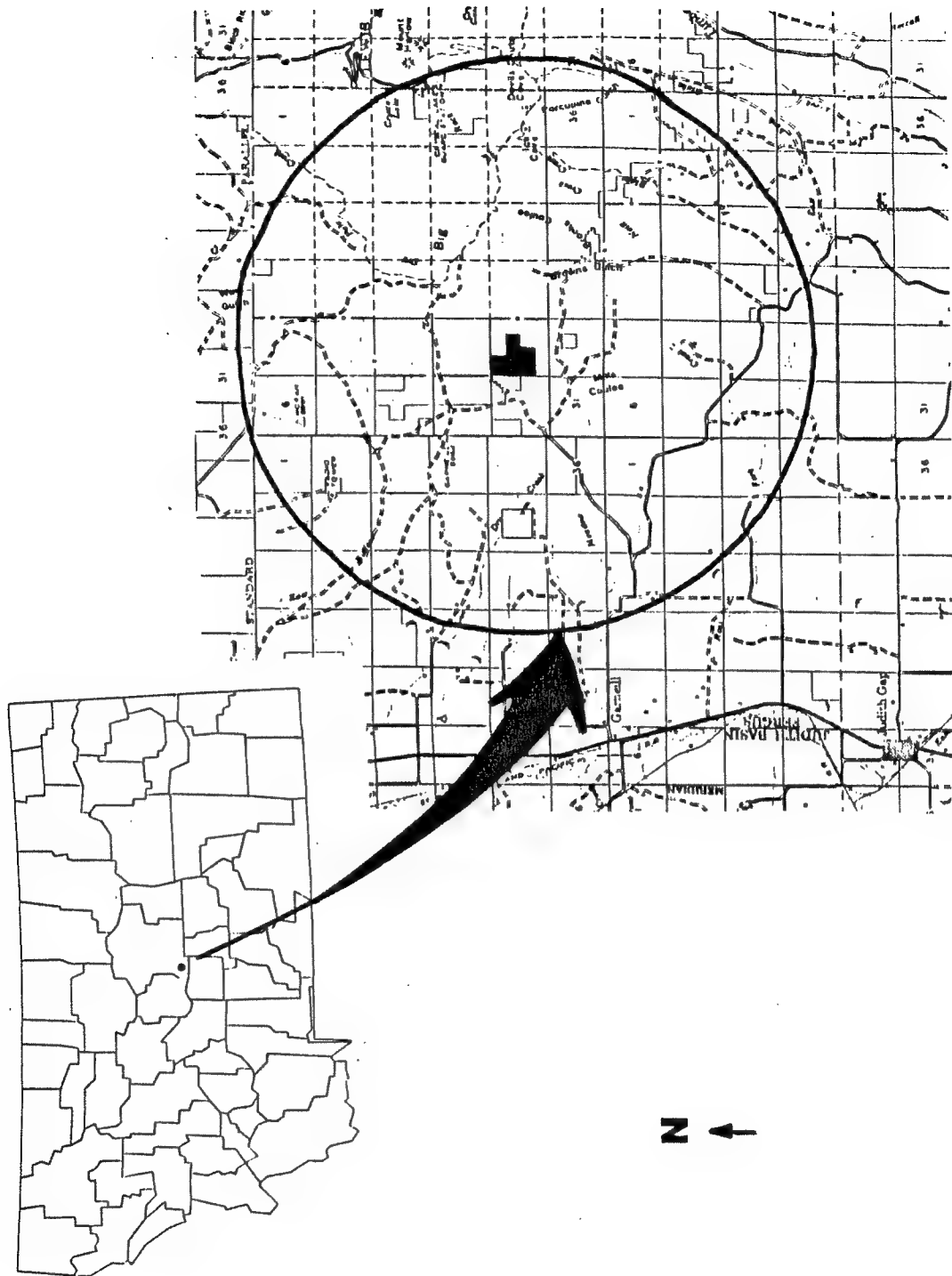


Figure 1. Map showing location of the Buck Demone Ranch in central Montana. The ranch boundary is defined as the black area in the center of the circle (T12N, R17E, Section 29).



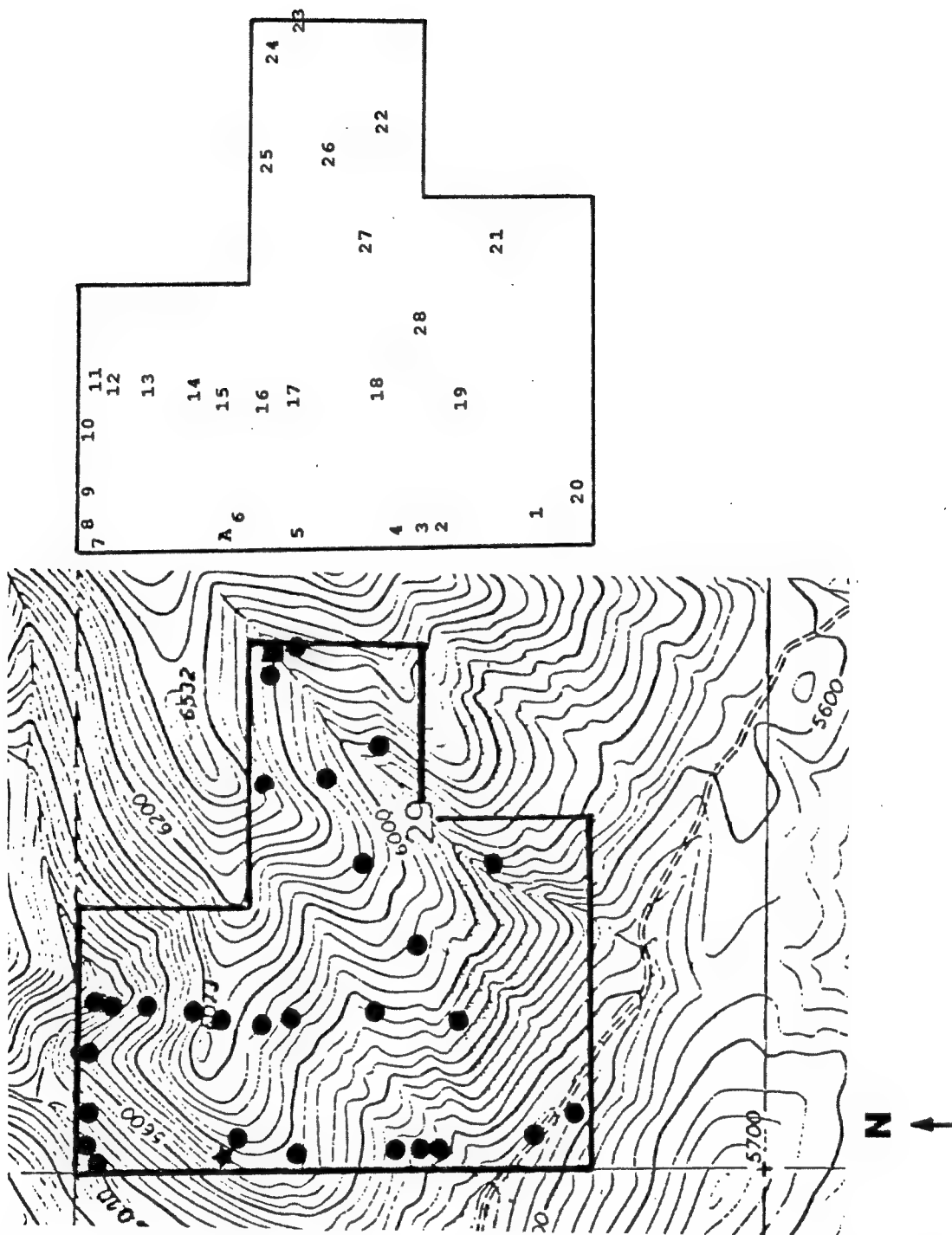


Figure 2. Map of Buck Demone Ranch showing locations of the 29 study plots and small limestone cave (indicated by square near east boundary). Numbers 1 through 28 (and corresponding dots) refer to "fast plot" samples while the "A" (and corresponding star) refer to the "standard plot" sample.

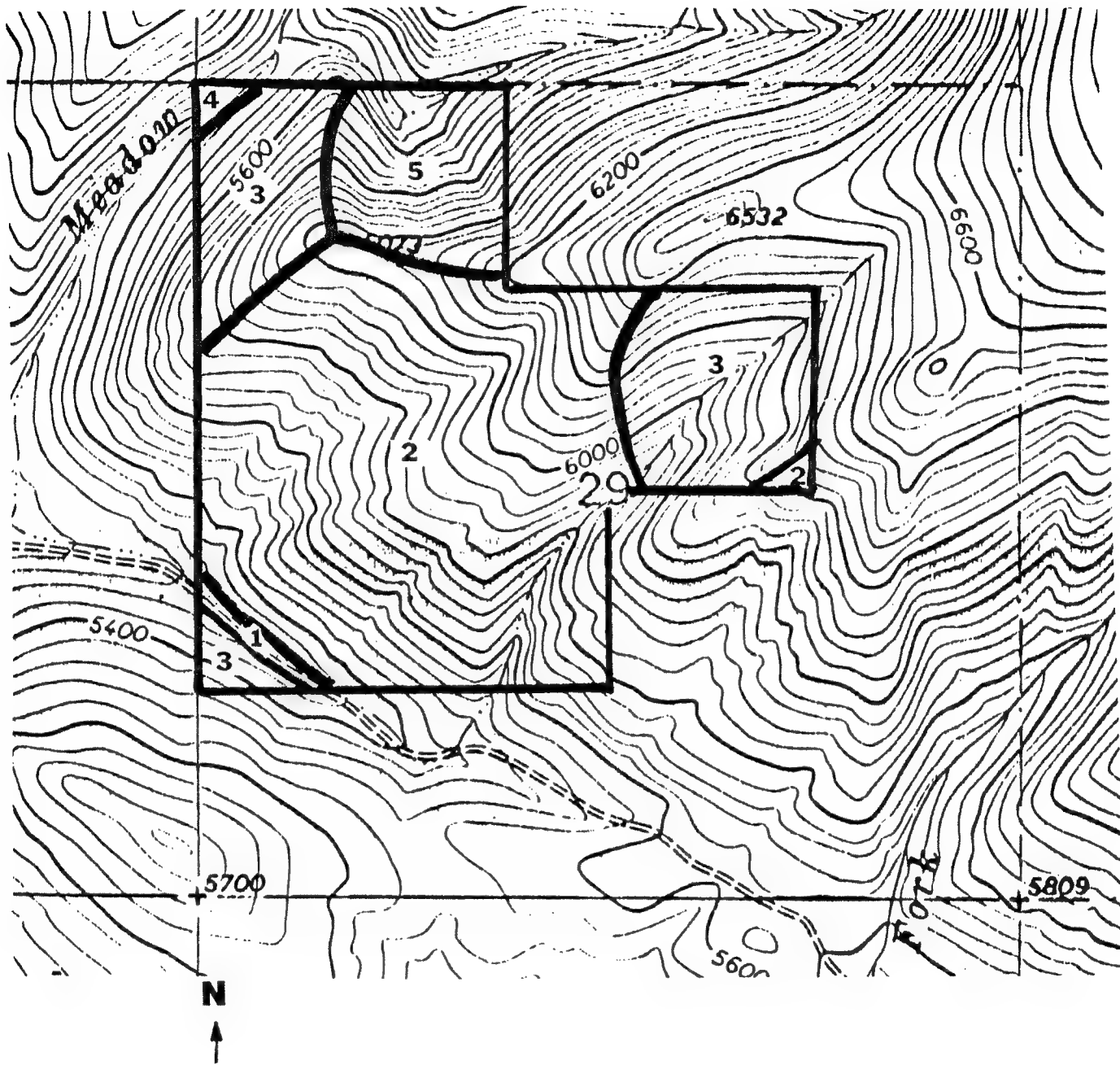


Figure 3. Map of Buck Demone Ranch showing soil map units (as defined by Clark (1988)). See Table 1 for key to map unit codes and descriptive information for each map unit.

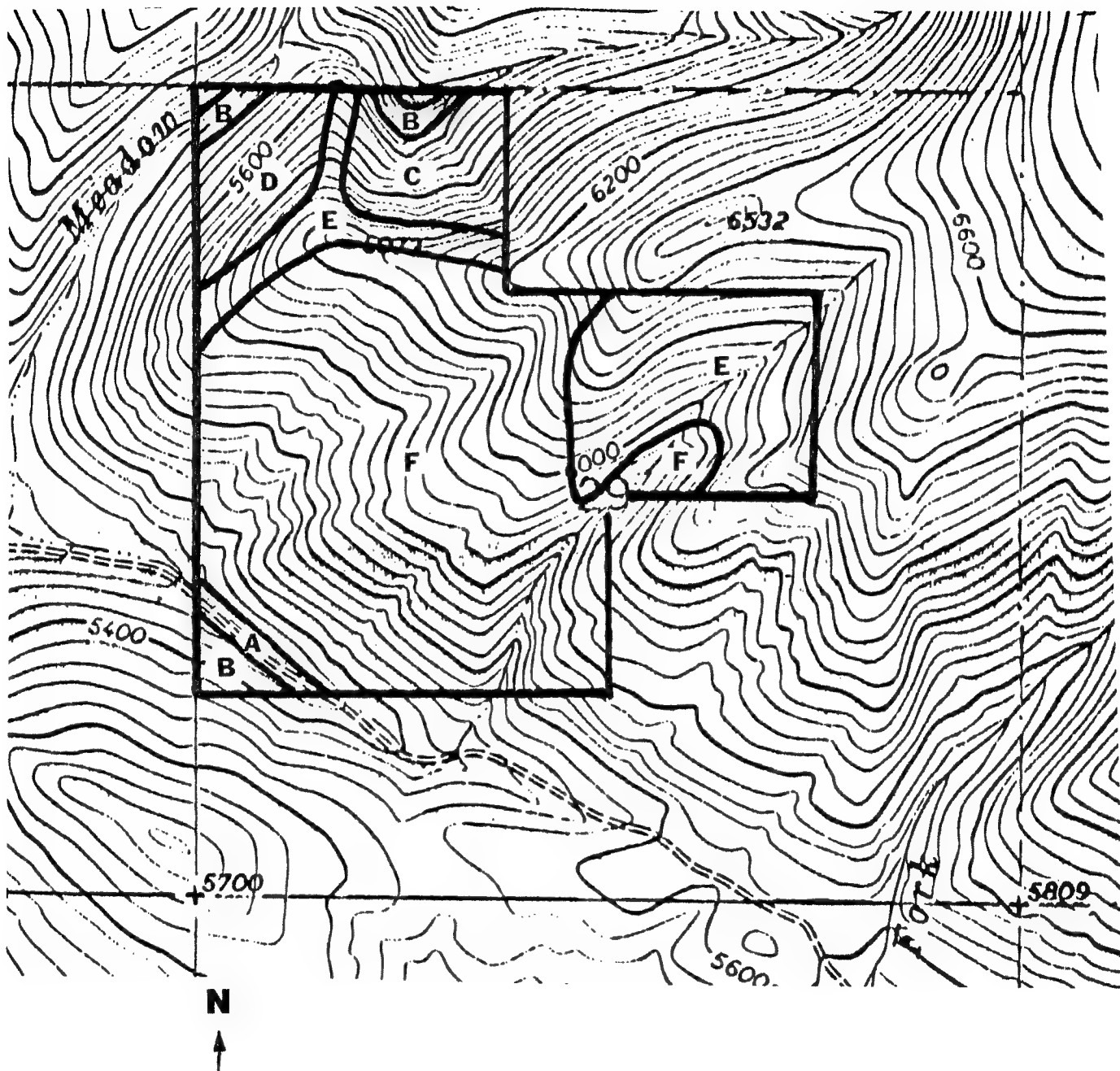


Figure 4. Map of Buck Demone Ranch showing plant community type map units. See Table 3 for key to map unit codes.



R.L. Dellechiaie

①

July 5, 1990 Buck Demore Ranch Survey (Snowies)

Start: 1:30 pm

End: 8 pm

general note: BROTEC is scattered throughout but is nowhere abundant

map #

- X ① this meadow is dominated by: MELOFF 95-100% cover  
 PHLPRA (Timothy) } both well-rep  
 POAPRA }  
 BROINE - present

\* thus it is basically totally exotic. Buck has given Roy Luther (adjacent ranch) permission to continue haying this meadow.

- X ② PSME/SYAL, AGSP (open forest → grassland transition) PSEMEN 10%; PINPON 30%; IRIPRA 20% (coll)  
 FESIDA 10%; AGRSPI 2%; SYMALB 1-5  
 MELOFF 15%; BALSAG 25%; SPIBET 5%

(dominant trees = 20" dia, 35' tall) (Medic. lupu?)

- X ③ PSME/SYAL, SYAL (slightly more mesic than #2 with bunchgrasses (closed forest) + or - absent)

PSEMEN 15%; PINPON 70%; SPIBET 20%; SYMALB 5.  
 BERREP 10%; ARNCOR 3%; SMIRAC 2%;  
 PRUVIR 7%; BALSAG 5%

(dominant trees = 20" dia, 40' tall)

- X collection ④ PSME/SYAL, AGSP (xeric site again relative to #3) IRIPRA collected here (Medic. lupu?)

- 2 photos X ⑤ PSME/AGSP (v. xeric forest/grassland).

cored PSME

in photo:

DBH = 43 cm; Age = 80 yrs; height = 40' 20"

PSEMEN 5%; PINPON 10%; AGRSPI 10%; FESIDA 20%  
 BALSAG 35%; AMEALN 3%; PRUVIR 5%; JUNCON 3%  
 SYMALB 2%

(note: a .1 ac patch of EUPESU (sponge) is just below this recon. plot) — however, these upper slopes are generally less weedy than the lower slopes, e.g., vicinity of plots 1 → 4.

- X collection ⑥ PSME/JUCO → PIPL/JUCO

PSEMEN 40%; PINFLE 40%; JUNCOM 40%; SLEHIRT (coll 900025)  
 ASTCON (coll) 15%; ROSSAY 2%; PINPON 10%; ARCUVA T  
 most regen is PSEMEN (i.e., PINFLE does not appear = "climax")

max dia = 20" max height = 45'

## July 6, 1990 Buck Demone Ranch Survey (Snovies)

start: 7am

end: 3pm

stumps  
pres. out no 4 to  
date back  
lost big  
fire  
(100 yrs?)  
see cores

general note: most of this ranch is pristine (forest undergrowth) except for the pasture in the SW and weediness on the S slope (partially lower → mid)

- + (7) POTR/OSOC (Hansen et al) — jeep trail travels up this draw (Meadow cr) unfortunately.  
- herb rich but *Phl. pra* is present
- + (8) PSME/COST (Hansen et al) — however no COST found. This way to no other type in a satisfactory way.  
PSME/VICA It represents a more advanced stage of succession from to plot 7 log.  
CYPMON present in both this + plot 7

++ Type # 7 is predom. over 8 in this vicinity and should receive emphasis in mapping

- ++ (9) PSME/LIBO, SYAL probably the predom. type of this slope. PINKON is abundant however but PSEMEN is reprod. succumbing (see 900025) JUNCOM 20%

- x (10) PSME/JUCO → PIFL/JUCO (trans. to PSME/ARUV clao)  
PSEMEN 25%; PINFLE 20%; PINCON 15%  
ARCUVA 5%; JUNCOM 40%

- + (11) combo of POTR/OSOC (mostly *osm. chi*) and PSME/COST (but no COST)  
- the jeep track still goes up this drainage (see plots 7+8) but is less used up here (woody debris etc... cross it). Exotics are minor elements up here.  
\*- slightly drier sites (but still in this bottom feature PSME/LIBO, SYAL)

- most basic slope area ranch (12) PSME/LIBO, SYAL lower slope  
(max dia = 20"; max ht = 50')

PSEMEN 30%; PINCON 50%  
LINBOR 60%; JUNCOM 5%

- note drop in JUNCOM cover relative to other PSME-PICO/LIBO sites

July 6, 1990 Buck Demore Ranch Survey (Snowies)

- + (13) (look inside the "264" on field base map)  
 PSME-PICO/LIBO, SYAL this whole N-slope is likely this  
 assoc. I am (have been) using SPIKET as a  $\pm$   
 ecological equivalent of SYMALB. ~~see~~ SYMALB has been  
 characteristically minor on all sites.  
 see Danks, + Danks (1968)

\* Found *Goodyera oblong.* at 5900' above this plot  
 (along the S transect). Looked for *GOOREP* but did not  
 find it.

- + (14) PIFL-PSME/JUCO with some PINPON (trace)  
 PINCON 25%

\* (~~many stumps~~ <sup>stump</sup> present dating back to old fire?)

PIFL dimensions (max): height - 25'  
 age - circa 100 yrs. (note: all ages in this study are as  
 dia - 33 cm BH)

- + (15) PSME/AGSP\* wi. FESIDA 25% cc; AGRSPI 5% cc;  
 BALSAG 15%; PINPON present as regen  
 PSEMEN at edge only tree present

\* this is basically a FESIDA-AGRSPI comm. (as M+S)  
 that is being "invaded" by trees

- + (16) PSME/AGSP very open stand AGRSPI 65%; FESIDA 15%  
 BALSAG 1%; POTFRU 1%  
 (a 30' x 15' patch of leafy spruce is located below  
 this plot) - however the veg. is generally non-weed  
 B-ranked

\* photo taken down + across this plot towards the  
 Ray Luther Ranch + Little Belt Mts.

- + (17) PSME-PIPO/SYAL, AGSP more weedy site (slightly) than #16  
 SYMALB 79% cc

\*\* Most of this slope is dominated by PINPON but  
 PSEMEN is present + successfully reproducing in most  
 areas



July 6, 1990 Buck Demore Ranch Survey (Snodgrass)

- x (18) (PSME-PIFL/JUCO?) PSME/SYAL, SYAL (more mesic than #17)  
 PSEMEN 10%; PINFLE 15%; PINCON 30%;  
 PINPON 50%; JUNCOM 30%; SHECAN 17%;  
 BERREP 20%; SPIBET 20%; SYMALB 1%;  
 ASTCON(coll) 20%

- x (19) PSME/AGSP very open stand (most trees are PINPON but PSEMEN is present. JUNSCO present)

\*\*\* it appears that there are patches of PIPO/Feid, Feid at the very driest extreme of sites at the lowest alts.

- x (20) ± PSME/SYAL, SYAL (mesic extreme of type) call it PSME/VICA (Roberts)

(— look at Roberts thesis to check for PSME/VICA)  
 PSEMEN 90%cc; PINPON 10%; ACRGLA 30%;  
 VIUCAN 15%; SYMALB 5%; OSMCHI 5%; GOOBLT  
 BERREP 10% (herb + shrub rich site)

\*\*\* definitely not central concept of type

- quite pristine esp. in view of close proximity to MELOFF meadow + access road. (B + rank)
- old cow pies on flats below plot

- 5-x (21) PSME/SYAL, SYAL lower slope above mid-slope gully (see baremap)

- 5-x (22) PSME-PICO/SYAL, SYAL

- x 4- (23) PSME-PIFL-PICO/JUCO

- x 4- (24) PICO (PSME)/JUCO

PINFLE + PSEMEN are absent

PINCON 70%; JUNCOM 30%; ARCUVA 15%

(check for PICO/ARUV)

photo = shows JucO + Aruv + Pico

some PSEMEN just outside plot; PINFLE also

call it PSME/JUCO

- new x 4+ (25) PIFL/FEID widgetop

PINFLE 15%; PSEMEN 15%; PINPON 5%

- x 4- (26) PICO-PSME/JUCO

FESIDA 20%; JUNCOM 15%; AGRSPZ 10%

- x 5- (27) PSME/AGSP

- 5+ (28) PSME/SYAL, SYAL

This whole slope is likely predom this type (i.e., the Agsp ph. is likely minor or absent)

Montana Natural Heritage Program  
1515 East 6th Ave., Helena, MT 59820

Start : 4:55 pm  
Finish : 6:55 pm

## COMMUNITY SURVEY FORM\*

### GENERAL PLOT DATA

#### IDENTIFICATION AND LOCATION

F1 KEY\_ID (Plot #) 90D025 F5 MO 07 F6 DAY 05 YEAR 90  
F2 EXAMINER R.L. DeVelice F3 EDIT \_\_\_\_\_  
STATE MT COUNTY Fergus F16 12N T/ 17E R/ 29 S/ NW4S/ NW4/4  
SITE NAME Meadow Creek F30 COMMUNITY SIZE (acres) ~15ac contin.  
F8 PLOT TYPES 34 F9 PLTRL 10.9 m F10 PLOT W 000  
F11 QUADNAME Crystal Lake QUADCODE 4610975

DIRECTIONS TO PLOT --> From Garneill, MT. leave US Highway 191 and proceed  
E 3.6 mi to Meadow Creek junction. Take left fork and proceed  
2.9 mi to Ray Luther Ranch. Ask permission to continue and proceed

#### ENVIRONMENTAL FEATURES

.7 mi beyond ranch to "Y" intersection. Take  
right fork & proceed .7 mi to Buck Denver property.  
F32 ECO TYPE C F33 PNC PINCON/LINBOR - PINCON/JUNCOM intergrade  
F33 CT \_\_\_\_\_ F36 SOIL UNIT 262 \*\*  
F37 SOIL TAXON Typic Ustochrept F38 PM 1  
F39 GEOMORPHIC LANDFORM 1 F40 PLOT POSITION M  
F41 SLOPE SHAPE 1 F42 ASPECT NW F43 SLOPE % 4 F51 SPFE 99  
F44 ELEVATION 5760 F46 SOIL SURFACE 1 F47 EROSION 0  
F50 GROUND COVER IS+ PG+ I R+ 6L+ 1W+ 1M+ 2BV+ 0 = 100%

#### VEGETATION STRUCTURE AND PRODUCTION

F54 STRUC 5 F55 VEG CHANGE 1 F56 TOT TREE COV 9  
F60 TOT SHRUB COV 8 F64 TOT GRAM COV 0 F65 TOT FORB COV 1  
F71 HERB/BROWSE PROD CLASS 2 F72 FUEL LOADING CLASS 07

#### CONSERVATION

OWNER PROTECTION N\*\*\* PHOTOS 3- 1) Cypripedium mont  
2) Linnaea bor.  
3) across plot  
F77 ANIMAL USE 1,2,7 F78 GROUND COVER DISTURBANCE 0  
THREATS logging, conflagration fires  
CONS./MANAG. NEEDS protect from logging

#### CONSERVATION RANKING:

QUALITY A Comments: very pristine site  
CONDITION A Comments: no exotics; no recent grazing  
VIABILITY B Comments: fires would greatly change structure (but this is natural)  
DEFENSE B Comments: \_\_\_\_\_  
RANK A Comments: \_\_\_\_\_

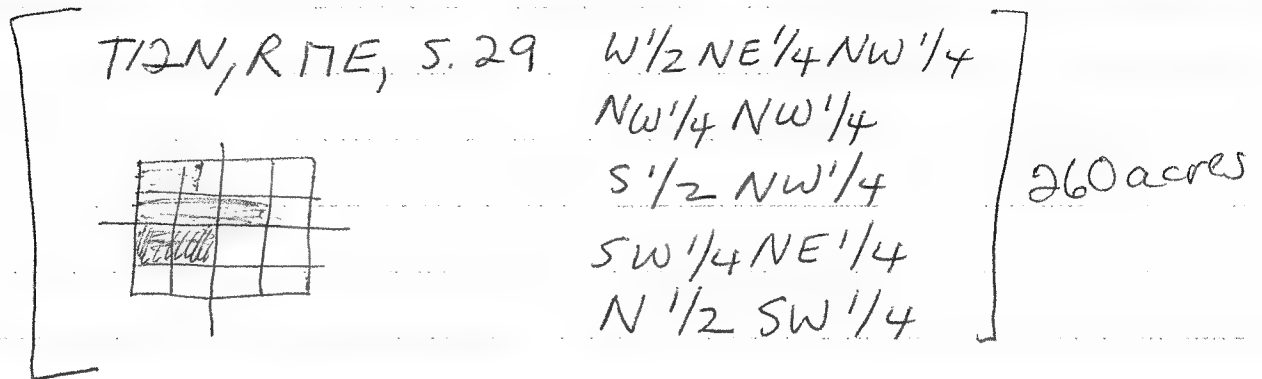
\*data fields preceded by an "F#" are described in the USDA Forest Service R-1 Ecosystem Classification Handbook

\*\* see Soil Survey of Fergus County (SCS)  
\*\*\* but owner is interested in TNC easement (see Joan Bird)

R.L. DelVelle

WK 538-7461  
HM 538-7592

7/3/90 Buck Demore Ranch Survey (Snowy Mts)



enter via road from Garneill. Go through Ray Luther Ranch (take left 3 mi in from Garneill (ask permission to cross Luther property))

Buck's plans for property:

- 1) will not graze livestock (though no fences exist and adjacent properties are grazed)
- 2) currently spraying leafy spurge (check for impacts on natives)
- 3) he plans some "minor" logging to improve "wildlife" habitat (he's a bow hunter)
- 4) plans to put in water developments (plastic-lined tanks) for wildlife watering
- 5) says lady's slippers occur in draw
- \* 6) Lisa S. says look for *Gadysia repens*
- \* 7) Dave G. says look for Mountain plover

## SITE SURVEY SUMMARY

Site Name: Buck Demone Ranch

Quad Name(s):

Quad Code(s): 10/10 locator:

State: \_\_\_\_\_ County(ies): \_\_\_\_\_

Town(s): \_\_\_\_\_

Township/Range/Section: \_\_\_\_\_

Field Quad Margin #: \_\_\_\_\_

Source of lead:

## Site Visit Chronology

Date: 7/5/90 Time:      to      Source Code:     

Surveyor(s): R.L. DeVelice

Date: \_\_\_\_\_ Time: \_\_\_\_\_ to \_\_\_\_\_ Source Code: \_\_\_\_\_

Surveyor(s):

Date: \_\_\_\_\_ Time: \_\_\_\_\_ to \_\_\_\_\_ Source Code: \_\_\_\_\_

Surveyor(s): \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ to \_\_\_\_\_ Source Code: \_\_\_\_\_

Surveyor(s): \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ to \_\_\_\_\_ Source Code: \_\_\_\_\_

Surveyor(s): \_\_\_\_\_

Other individuals knowledgeable about site and/or EO's: \_\_\_\_\_

Current use of site: \_\_\_\_\_

Tract ownership or managed area name (names, addresses, phone #). Continue on last page for others.

## INDEX

Under "Element Name", list all heritage-listed species/communities sought, found or reported from site. Under "Code on Base Map", indicate a simple code number or letter to be used in identifying element locations on the base map.

Indicate occurrence numbers, if known. Lastly, indicate whether the element was found (Y,N,N/A) on each particular date, whether the EOR was transcribed or updated and whether a return visit is needed.

[illegible]

Habitat map - The purpose of the sketch is to show fine details of the site which are not shown on the topographic base map. Sketch the habitat area searched, and show; (1) the route taken, (2) any listed species/communities and their boundaries, (3) landmarks, and (4) evidence of disturbance (e.g., structures, dumps, exotic flora). Include scale and indicate north.

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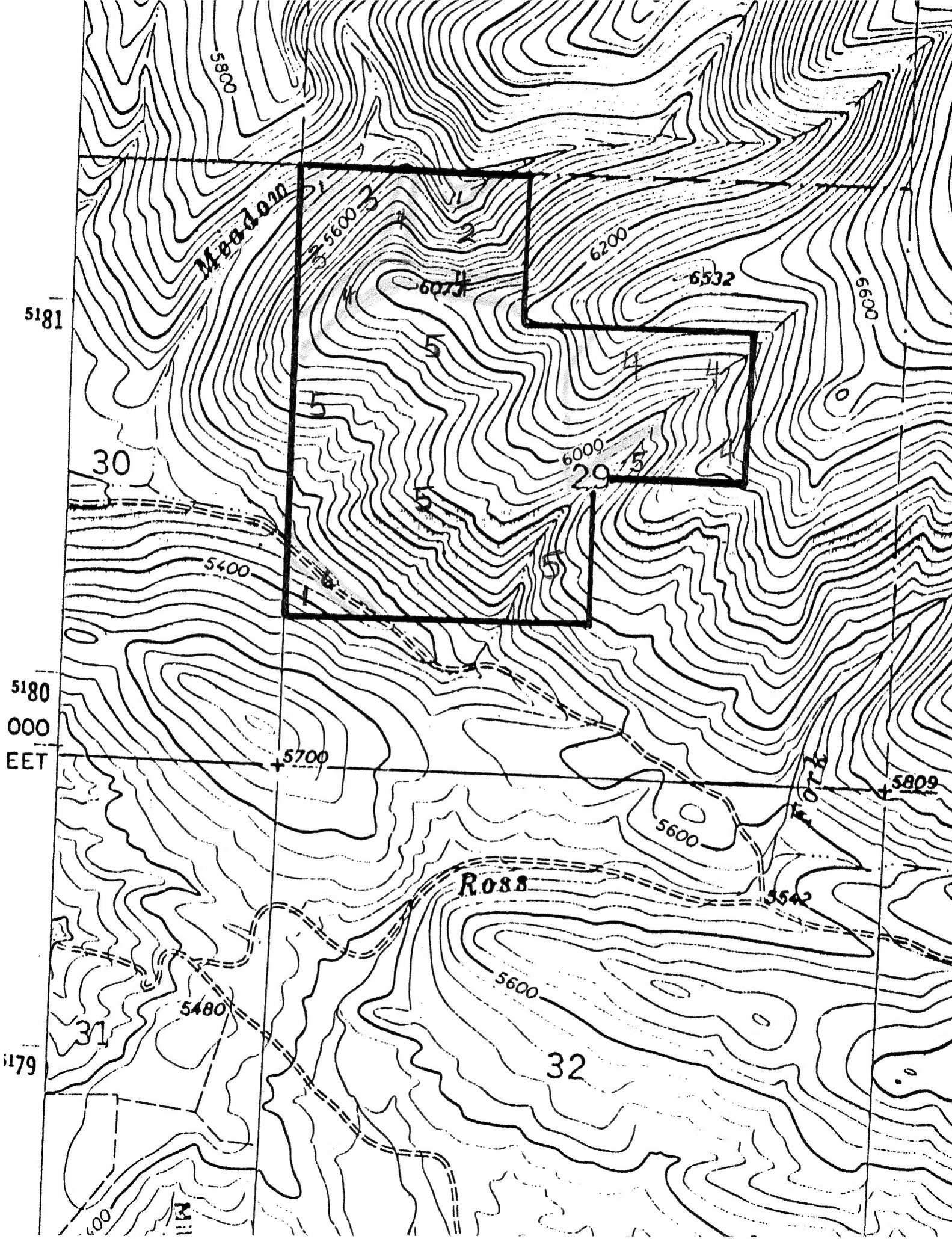
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July 6, 1990 Buck Demore Ranch Survey (Snodgrass) — Additional Data

Rank along a moisture gradient

- E ●● 4- Pfl/Juco <sup>PSME/JUCO</sup> ridge type <sup>upper</sup> (Typic Ustochrept)
- D ●● 3- Psme/Libo, syal and Pico/Libo <sup>mesic NW slope (soil 262)</sup> (Typic Ustoc)
- B Check Soil Survey ●● 1- Potr/Osac, and Psme/Cast, <sup>PSME/VICA</sup> riparian sites (alluvium - check Soil Sur)
- C ●● 2- Psme/Libo, syal v. mesic N-slope protected basin (soil 264) (Typic Crya)
- F ● 5- Psme/syal, syal; Psme/syal, Agsp; Psme/Agsp; Lipo/Feid, Feid  
S-slope complex from ± mesic → xeric (Udic Haploboroll)
- A ● 6- riparian meadows (weedy) (Typic Argiboroll? Haploboroll?)

HA/PA/PA/PA





X=900025

5181

30

5180

1000

FEET

5700

5809

5179

31

5480

32

Ross

5600

5600

5542

5800

5600

6200

6532

6600

264

262

124

262

262

10

29

6000

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Small Cave

40 ft

7p; po / Feid?